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ABSTRACT

In 1989, the Mathematics, Engineering, and Science Achievement (MESA)/Minority Engineering Program (MEP) was initiated at American River College. The MESA/MEP program recruits Black, Hispanic, and Native American students and provides assistance, encouragement, and enrichment programs to help them succeed in the fields of mathematics, engineering, science, and computer science. The MESA/MEP program is designed to serve as a bridge between high school MESA programs and university MEP programs for students who attended a community college before enrolling in a university. This program evaluation begins with an overview of the MESA/MEP Program. Next, a description is provided of the program's activities, including scholarships, awards, and honors; leadership development efforts; recruitment of potential MESA/MEP students; enrichment programs (e.g., tours to California universities and resume workshop); and support services/supplies for students (e.g., weekly meetings, bulletin board, study halls, class clustering). The next section of the report is a program evaluation, including information on the student population, persistence, grade point averages, and affective outcomes evidenced in individual, group, and staff interviews. Finally, conclusions and recommendations are presented. Appended information includes a sample MESA/MEP brochure, evaluation forms, personal, group, and staff interview summaries, a list of MESA/MEP students transferring in fall 1990, a library list, and information on developing a MESA/MEP program. (WJT)

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MESA/MEP AT AMERICAN RIVER COLLEGE

YEAR ONE EVALUATION REPORT

California Community College Chancellor's Office
Contract No. 88-0661
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MESA/MEP AT AMERICAN RIVER COLLEGE
YEAR ONE EVALUATION REPORT

INTRODUCTION

Black, Hispanic and Native Americans are underrepresented in university programs in mathematics, science, engineering, and computer science, as well as in related fields in the corporate world. In order to enter and succeed in such programs, students need to begin taking appropriate mathematics and science courses early in their school years, and to continue their plan for many years.

This report summarizes the results of a project designed to address these concerns. The MESA/MEP program described below recruits students from these ethnic minority groups and provides assistance, encouragement, and enrichment programs to help them succeed in the fields of mathematics, engineering, science and computer science. This project was sponsored by the Chancellor's Office of the California Community Colleges (Contract No. 88-0661) and conducted by American River College in the Los Rios Community College District in Sacramento, California.

THE MESA/MEP PROGRAM

Purpose

MESA stands for Mathematics, Engineering, and Science Achievement; MEP stands for Minority Engineering Program. As outlined in the program brochure, the MESA/MEP program provides special support services to community college students who are enrolled in, majoring in, or working toward a degree in mathematics, science, engineering or computer science. While the program is designed primarily for Black, Native American or Hispanic students, participation is also open to students of other ethnic groups (in accordance with paragraph 17a. of the contract).

Scope and Background

MESA programs are available to students at the elementary, junior high and high school levels. The program may begin as early as the third grade level, although most elementary school programs begin at the fourth grade level. MESA was organized to serve ethnic groups that have been historically underrepresented; namely, Black, Mexican-American (as a specific subgroup of Hispanic) and Native American students. Other students are not barred from participation, but are not actively recruited. Potential MESA students are identified through the use of a student survey form which allows school counselors working with the MESA director to screen for ethnicity and relevant coursework, and those who appear to be good candidates are then actively recruited. This procedure is considered to be more effective than blanket recruiting, which tends to attract students who are not among those targeted by the program. MESA programs exist in almost all the high schools and in a large number of middle and elementary schools throughout the greater Sacramento area.

MEP is the university-level program, and it is targeted specifically for Black, Hispanic and Native American students in math-based majors, predominantly engineering and computer science. Whether other students may be served appears to vary somewhat from one university to another; some may serve a broader spectrum of former MESA students while others follow rather strict guidelines as to ethnicity and major. In the greater Sacramento area, both CSU Sacramento and UC Davis have MEP programs.

MESA/MEP at American River College

The MESA/MEP program at American River College was begun as a function of the ARC Transfer Center in 1986. It was designed to provide a "bridge" between high school MESA programs and university MEP programs for students who attended a community college before enrolling in a university. It is the only community college program in California, and has attracted the attention of similar institutions nationwide. Program Coordinator Mary Ellen Fort and Counselor Manuel Ruedas have made presentations about the project at numerous conferences statewide, and Ms. Fort developed an information package to assist other community colleges in developing MESA/MEP programs. (A summary is included in the Appendix of this report.)

Initial financial support for the program came from the ARC Transfer Center budget. In 1988 the program received $700 from the ARC Student Services budget and two $250 scholarships from an insurance company, but it became apparent that additional funding was needed to develop the program to its potential. At a luncheon meeting held for the purpose of obtaining intersegmental support for the program, a Pilot Project Committee was organized. Among the fourteen participants were representatives of UC Davis, CSU Sacramento, Capitol Area MESA, and American River College, including key personnel in admissions, special minority programs, counseling, transfer and articulation, as well as the targeted academic areas.

As an outgrowth of this meeting, a successful grant proposal was developed by Barbara Howard, Los Rios Director of Transfer Centers; Mary Ellen Fort, ARC Transfer Center Director; Manuel Ruedas, Counselor; Dr. Louis Johnson, Vice President of Student Services; and Rosemary Montijo, Dean of Counseling. The grant provided funding from the California Community Colleges Chancellor's Office for the period June 15, 1989 through June 30, 1990 (the time frame for evaluation of the project included the Spring 1989 semester as well as the 1989-90 academic year). Mary Ellen Fort was named project director; Manuel Ruedas was appointed faculty advisor, and Virginia Holland was employed as a full-time (temporary) project clerk. Since MESA/MEP is a function of the ARC Transfer Center, ultimate administrative responsibility for the project rests with Dr. Johnson, through Ms. Montijo and Ms. Howard.

In-kind assistance was provided by American River College in the form of 20% "release time" for Ms. Fort and 10% for Mr. Ruedas (they actually spent much more time); office space with telephone and other essential items such as furniture, etc.; use of classroom space for weekly meetings and study hall; reference and clerical materials; tutors from the ARC Tutoring Center; and printing of MESA/MEP brochures. These were made available through the cooperation of Dr. Queen Randall, ARC President; Max McDonald, Vice President of Administration; Dr. Khe Do, Dean of Science; and Dr. Johnson. Several faculty members contributed textbooks for student use in the MESA/MEP study hall. Some funding for evaluation was provided in the contract, and the district Office of Planning and Research staff contributed considerable extra staff time and computer resources to that effort.

Project Objectives

The objectives of the project, as described in the contract proposal, included the following:

1. Provide scholarships for ARC MESA/MEP students.
2. Create leadership development program (off-campus retreat) for ARC MESA/MEP students.
3. Implement recruitment activities for potential ARC MESA/MEP students.
4. Develop enrichment programs for ARC MESA/MEP students.
5. Provide support services/supplies for ARC MESA/MEP students.
6. Evaluate the program so that data can be used to start MESA/MEP programs at other community colleges.

PROGRAM ACTIVITIES

The various activities conducted to meet the stated objectives of the project are described briefly in the following pages. More detailed summaries of most of the activities are included in the Appendix of this report.

Scholarships/Awards/Honors

One of the most successful outcomes of this project was the provision of academic scholarships to MESA/MEP participants. Throughout the duration of the project, students were assisted in applying for admission to four-year schools and in applying for scholarships and financial aid. One of the highlights of the project was the year-end banquet sponsored by Capitol Area MESA, held on May 9, 1990 at the Red Lion Inn, Sacramento, California. This event was attended by approximately 800 persons, including elementary and high school MESA participants from throughout the greater Sacramento area, their parents and friends, representatives from the business community and from local four-year universities, and staff of area MESA and MEP groups. About a dozen ARC MESA/MEP participants attended, together with ARC staff representatives. Twelve scholarships were awarded to ARC MESA/MEP students (three to transferring students, nine to continuing ARC students):

Student	Amount	Intended Major	Intended Transfer Institution
Kevin Murai	$600	Civil Engineering	University of California, Davis
Angie Montalvo	$600	Biology/Env. Science	University of California, Davis
Olivia Hunter	$500	Mechanical Engineering	California State University, Sacramento
Kenneth Mitchell	$500	Zoology	Howard University, Washington, D.C.
Kim-Phong Nguyen	$500	Food Service/Nutrition	University of California, Davis
Aba-Yawa Ngissah	$330	Biological Science/Pre-medical	University of California, Los Angeles
Perry Woods	$330	Biological Science/Pre-medical	University of California, San Diego
Miguel Garcia	$330	Biological Science/Chemistry	University of California, Davis
Meena Rastogi	$330	Undecided	Undecided
Mark Fernandez	$330	Civil Engineering	California State University, Sacramento
Thera Hearne	$330	Undecided	California State University, Sacramento
Fernando Espinosa	$330	Mechanical Engineering	University of California, Davis

In addition to these scholarships, a number of MESA/MEP participants received Cal Grant A, Pell Grants, and/or grants from individual universities.

Two ARC MESA/MEP participants were selected for summer internships in pre-medical study: during the summer of 1990 Vanna Rapeti will attend the University of Washington Medical School and Perry Woods will participate in the Health Sciences Minority Program's Freshman Bridge Program in general chemistry at the University of Minnesota. It is believed that Vanna is the youngest student in the United States to receive such an internship, and that these two are the only community college students to receive summer internship appointments this year.

Five ARC MESA/MEP participants were nominated for the College Entrance Examination Board's National Minority Students Talent Roster at the ARC awards luncheon in May 1990. This honor is awarded to American Indian, Asian, Black, Hispanic, or Pacific Islander students who have completed at least 30 transferable units with a minimum grade point average of 2.75. A book listing the names, GPA and college majors of those so honored is published by CEEB and distributed to colleges and universities nationwide. In return, these students receive information regarding these institutions, availability of financial aid, and invitations to consider enrolling at these institutions.

Leadership Development

An off-campus Leadership Development retreat was scheduled for February 16, 1990, but when an unexpected snowstorm made travel difficult the retreat was rescheduled for April. The Friday evening was then used for a social gathering/planning session in the Ranch House on the ARC campus, attended by some 30 ARC MESA/MEP students. The evening was productive both in providing participants the opportunity to get better acquainted and in making plans for future events.

The Leadership Development Retreat was held at the Sly Park Conference Center near Placerville, California, on April 6-8, 1990 to provide MESA/MEP students the opportunity for building leadership skills and self-empowerment. Participants included 16 ARC MESA/MEP students, three students from CSUS and UCD MEP, a CSUS faculty member, an El Dorado high school counselor, two representatives from Pacific Bell, and five ARC faculty/staff members. The retreat was considered a real success by those who attended.

Recruitment of Potential ARC MESA/MEP Students

Social/Orientation Meeting. The first event of the year was held in the ARC Ranch House on September 22, 1989. Letters of invitation were sent to all students on the MESA/MEP mailing list, and approximately 25 attended. The meeting provided an opportunity for students to meet each other on a social basis and also to hear of the various services provided by MESA/MEP and the activities planned for the year.

MESA/MEP Brochure. An attractive brochure was developed (sample attached) which describes the program, lists the services provided and the benefits of MESA/MEP participation, and includes pictures and quotes from students in the program. The first run of 5,000 was funded by ARC as part of its in-kind assistance, and a second run of 15,000 was funded through the District Transfer Center budget. The brochure was updated for Fall 1990, including a description of corporate networking as an added service, and printed using recruitment funds supplied in this contract. Brochures were made available to ARC students, local high schools, the Annual WAAC College Faire, the ARC Matriculation and MESA/MEP offices, and ARC counselors.

High School/Junior High School Contacts. ARC MESA/MEP made a presentation to 47 MESA students at Grant High School in October 1989 and hosted three students from Rio Tierra Junior High School at ARC's Chemistry Day in November 1989. On another occasion, 38 students from Valley High School accompanied ARC MESA/MEP participants on their visit to Stanford University in May 1990.

Student-to-student and Staff Recruitment. ARC MESA/MEP students discussed the program with other students, in person and by telephone. At least 300 telephone calls were made by Manuel Ruedas and/or Virginia Holland to ARC students identified by major and ethnicity as potential MESA/MEP participants. Referrals received from local high school MESA counselors regarding students who expressed a possible interest in attending ARC were followed up. Three articles regarding MESA/MEP appeared in The Current, ARC's student newspaper, and weekly announcements appeared in the school bulletin.

Year-end Open House. On May 30, 1990, ARC MESA/MEP hosted an Open House in Raef Hall 162 to acknowledge the help they had received and to highlight MESA/MEP accomplishments during the year. The event was attended by some 100 persons, including Los Rios District Chancellor Marjorie Blaha, Trustee Albert Rodda, Student Trustee Don Trujillo, ARC President Queen Randall, district and college administrators and staff, representatives from Capitol Area MESA, CSU Sacramento, UC Davis, and business/industry, as well as present and potential MESA/MEP students.

Enrichment Programs

MESA/MEP students participated in a variety of activities designed to help them become familiar with the educational and employment opportunities potentially available to them. These included the following:

Christmas Banquet and Career Presentation. One of the most important activities took place in December 1989 when ARC MESA/MEP students visited CSU Sacramento. Following a tour of the engineering department led by Dr. John Hester, CSUS Associate Dean of Engineering, the group had dinner and then heard presentations by a panel of five professionals who were themselves members of minority groups traditionally underrepresented in science and engineering fields. Panel members included two (female) physicians, and three (male) engineers: Dr. Ruenell Adams, medical director of the Sutter Intermediate Care facility in West Sacramento; Dr. Sandra Montijo, pediatrician and director of the Northern Sacramento Valley Rural Health Project; Anthony Servin, mechanical engineer with Pacific Gas and Electric; Humberto Blanco, project engineer at McClellan Air Force Base; and Jesse Session, engineer at Aerojet Corporation. Approximately 60 persons attended, including students from both ARC MESA/MEP and CSUS MEP, faculty from both CSUS and ARC, and some parents of the students. Students had an opportunity to mingle with the presenters during dinner and to ask questions afterward. The evening was considered a great success by ARC MESA/MEP participants.

Tours to California Universities. MESA/MEP students participated in tours to CSU Sacramento, UC Berkeley, UC San Francisco, and Stanford University. A visit to UC Santa Cruz is planned for June 22, 1990. A summary of each of these visits is included in the Appendix of this report.

Résumé Workshop. ARC Counselor Manuel Ruedas conducted a résumé workshop for MESA/MEP students in Raef Hall 162 on May 11, 1990. He discussed the purpose of the résumé, drafting one's work experience history, focus and formats, and other relevant topics.

Honors Luncheon. On June 8, 1990, a luncheon was held at the ARC Ranch House to honor the 19 students who were transferring to four-year universities in Fall 1990 and the MESA/MEP staff.

Support Services/Supplies for Students

Various support services were provided for MESA/MEP students as a part of this project. These included:

Weekly Meetings. All MESA/MEP participants were encouraged to attend the weekly meeting held on Fridays at 2:00 p.m. in Raef Hall 162. The meeting served to help participants get to know each other and as a forum for sharing information about potential educational and/or career opportunities or group activities.

Bulletin Board. The walls and bulletin board in the MESA/MEP office were replete with posters, announcements and brochures regarding potential educational and career opportunities, and pictures of role models, as well as with photographs of MESA/MEP students involved in their various activities. Students were also permitted to use the bulletin board for messages to and from each other.

Study Halls. The MESA/MEP office at ARC, which is also used by students as a study hall, is located in Raef Hall 162A. Office/study hall hours are 8:00 a.m. to 5:00 p.m. Monday through Friday. Students are asked to sign in each day that they use the study hall. Even though space is very limited, this proved to be a very popular and useful service for students: based on sign-in sheets for October 1989, an average of 11 students per day used the facility for study; by March 1990, the average was 33 students per day. The study hall not only provided a place to study, which students may have lacked in their home environment, but also fostered camaraderie among the students and helped to strengthen their common goals.

In addition to making office space available for study, arrangements were made through the ARC Science Department for students to study in Room 425 in the Science area during selected hours throughout the week. This was particularly convenient since this room was located close to the science classrooms.

Class Clustering. The purpose of class clustering is to allow students to schedule courses together so that they may form study groups with their MESA/MEP classmates. When students receive lecture information from the same instructor, peer tutoring is facilitated. Class clustering has been effective in many universities in California and is considered to be a significant factor in aiding retention. In November 1989, using a block of seats which had been reserved in certain mathematics, chemistry and physics classes, priority registration and clustering for the Spring 1990 semester was conducted for 30 ARC MESA/MEP students. In May 1990, 22 MESA/MEP students were similarly registered and clustered for the Fall 1990 semester.

Tutoring. Tutoring was a key component of the ARC MESA/MEP program. The ARC Tutoring Center agreed to provide tutors in mathematics, science and computer science as a part of ARC's in-kind matching funds. To the extent that tutors were provided, this service was considered to be very helpful and was appreciated by the students who received tutoring. There were some problems in finding sufficient numbers of tutors in the academic areas in which help was needed and in setting tutoring appointments at times and locations mutually convenient for all parties concerned. Thus much of the tutoring was loosely structured and was coordinated through course clustering lists. Some ARC faculty, especially several mathematics instructors, provided free tutoring in the MESA/MEP study hall from time to time. Peer tutoring often occurred when students were studying together in the office study hall, and was considered beneficial for tutors as well as for those they helped. Records indicate that approximately 66 MESA/MEP participants used some form of tutoring services. This is a component that needs further development.

Drop-in Counseling. ARC counselors Brian Pond and Maria Wong each scheduled two hours per month in the MESA/MEP office to provide on-the-spot counseling assistance. (MESA/MEP students were also encouraged to see their regular counselors in the ARC Counseling Center.)

Crossover Enrollment. Arrangements were made for ARC students to enroll concurrently in an appropriate course at CSU Sacramento. While only one MESA/MEP student took advantage of this opportunity, that student was very enthusiastic about her experience and recommended it for others.

Books/Supplies. Various reference books, college catalogs, publications from various universities, brochures regarding career opportunities, and other similar materials were made available for use in the MESA/MEP office/study hall (see Library List in Appendix). A number of ARC faculty members contributed desk copies of textbooks which could also be used in the study hall. In addition, the UC Davis MEP program contributed a number of books; attractive bookplates were affixed inside each of these books, acknowledging the gift.

PROJECT EVALUATION

The MESA/MEP project proposal as approved included approximately $3400 in funding for an evaluation component to be designed and implemented in cooperation with the Los Rios District Office of Planning and Research. The OP&R recommended a design that would include both formative evaluation (information to be used by program directors to improve the program as it goes along) and summative evaluation (information that ascertains the effects of a program at some end point). The research staff reported informally to program staff on results from questionnaires, interviews, etc., as they became available, so that the information could be used to strengthen the MESA/MEP program whenever appropriate.

In addition to formative and summative evaluation, the research design included qualitative as well as quantitative measures. Grade point averages, persistence percentages and demographic data gathered through analysis of student transcripts were balanced with student and staff perceptions about program effectiveness gathered through questionnaires, focus groups and personal interviews. This design followed three basic principles of research methodology: the use of multiple sources of evidence, the development of a case study data base, and the linking of one piece of information to another. Such a design is supported by the literature as being the best for determining program effectiveness. "The data obtained from quantitative research, combined with insights gleaned from qualitative inquiry, provide educational planners with a comprehensive approach to problem solving and decision-making." (AIR Professional File, No. 35, Spring 1990, "Case Studies as a Supplement to Quantitative Research: Evaluation of an Intervention Program for High Risk Students," Peglow-Hoch and Walleri, p. 7.)

The evaluation plan as developed included the following components:

1. Four forms were designed for use in gathering data about the program (see copies attached).

   a. Intake Form (to be completed by student or Intake Interviewer), with three sections:
      1) Personal Information: Previous MESA membership; eligibility for admission to UC and CSU; educational level of other family members; employment status; long-term career goal.
      2) ARC Information: Major; need for tutoring and/or financial aid.
      3) Transfer Information: Intended transfer institution; projected transfer date; planned major at four-year school; Transfer Admission Agreement status; dates of application/acceptance.

   b. Demographic/Performance/Follow-up Data (to be obtained from records): gender, ethnicity, age; ESL enrollment; major field of interest upon enrollment; units attempted/completed; overall and transfer grade point averages; participation in MESA/MEP activities (study halls, tutors, etc.); financial aid and/or scholarships received; ARC degrees granted; transfer university/major/date.

   c. Program Activity Evaluation Summary (to be completed by staff for each activity): type of activity; date and number of participants; institution(s)/staff involved; transportation; cost and funding; student ratings; anecdotal comments; recommendations for future activities.

   d. Student Evaluation of Activity (to be completed by each student participating in an activity): open-ended questions on what was best about the activity and what could have been improved; an overall rating on a five-point scale; and space for suggestions for future activities.

2. A dBaseIII microcomputer program was designed by the OP&R systems software specialist to be used for entering data from these forms into the computer. This program allows MESA/MEP microcomputer data base files to be moved to the district's mainframe computer for subsequent statistical analysis.

3. Two OP&R staff members met with a group of ARC MESA/MEP students to gather more general impressions of the students' feelings about the program.

4. An OP&R staff member conducted 31 individual interviews with MESA/MEP students, seeking responses to a fairly structured set of questions as well as "open-ended" comments on student concerns.

5. OP&R staff also met with ARC MESA/MEP faculty and staff to learn their perceptions of the program.

It was agreed that the ARC staff would complete the forms and enter the data into their microcomputer; the district OP&R staff would analyze the data and prepare a draft version of the final report, which the college would then edit/revise and submit to the California Community College Chancellor's Office.

Student Population

A total of 181 students were involved in the ARC MESA/MEP program during the three-semester period described in this report. Their demographic characteristics are described below, aggregated according to the semester in which they began participation in the program:

Cohort 1: Those who began MESA/MEP participation in Spring 1989 (N=30, or 16.6%).
Cohort 2: Those who began MESA/MEP participation in Fall 1989 (N=97, or 53.6%).
Cohort 3: Those who began MESA/MEP participation in Spring 1990 (N=54, or 29.8%).

	Cohort 1 Spring '89		Cohort 2 Fall '89		Cohort 3 Spring '90		Total	
	No.	%	No.	%	No.	%	No.	%
Gender								
Male	24	80.0%	59	60.8%	31	57.4%	114	63.0%
Female	6	20.0%	38	39.2%	23	42.6%	67	47.0%
Totals	30	100.0%	97	100.0%	54	100.0%	181	100.0%
Ethnicity								
Hispanic	13	43.3%	41	42.3%	18	33.3%	72	39.8%
Black	9	30.0%	29	29.9%	21	38.9%	59	32.6%
Asian	2	6.7%	11	11.3%	5	9.3%	18	9.9%
Native American	0	0.0%	6	6.2%	3	5.6%	9	5.0%
Other (not specified)	2	6.7%	4	4.1%	3	5.6%	9	5.0%
Filipino	0	0.0%	3	3.1%	2	3.7%	5	2.8%
White	0	0.0%	2	2.1%	2	3.7%	4	2.2%
Uncoded	4	13.3%	1	1.0%	0	0.0%	5	2.8%
Totals	30	100.0%	97	100.0%	54	100.0%	181	100.0%
Age Groups								
Under 18	1	3.3%	5	5.2%	1	1.9%	7	3.9%
18-20	14	46.7%	39	40.2%	29	53.7%	82	45.3%
21-24	6	20.0%	21	21.6%	13	24.1%	40	22.1%
25-29	8	26.7%	20	20.6%	6	11.1%	34	18.8%
30-39	1	3.3%	10	10.3%	4	7.4%	15	8.3%
40 and Over	0	0.0%	2	2.1%	1	1.9%	3	1.7%
Totals	30	100.0%	97	100.0%	54	100.0%	181	100.0%

As shown above, only 20% of the early MESA/MEP participants were women; however, the percentage of women increased each semester, to 42.6% of those who joined in Spring 1990. Overall, 63% were male, and 47% were female. By comparison, ARC's total enrollment in Fall 1989 included 56% females and 44% males.

With respect to ethnicity, the project was a real success in reaching its target groups: 39.8% of all MESA/MEP participants were Hispanic, 32.6% were Black, and 5.0% were Native Americans. The overall enrollment at ARC in Fall 1989 included 6.7% Hispanics, 5.4% Blacks, and 2.5% Native Americans.

Not surprisingly, more than 49% of MESA/MEP participants were 20 years old or younger; another 22% were 21-24, and almost 19% were 25-29 years old; thus, 90% were under 30. ARC's total enrollment included 32.4% age 20 or under, 19.7% 21-24, and 16.4% 25-29, for a total of 68.5% under 30.

The evaluation forms designed for this project provided space to indicate the student's major field upon enrollment and then to record any changes that might occur during the three-semester duration of the project. However, by the time the forms were developed in late November 1989 it was too late to gather first-hand data from students in Cohorts 1 and 2, so staff compiled the data as well as they could during the spring of 1990. The majors shown in the next summary reflect those given by students when they began participation in ARC MESA/MEP (if available); if no information was provided or the student was "undecided," data from the application for admission form are shown. No semester-to-semester "changes of major" were recorded.

	Cohort 1 Spring '89		Cohort 2 Fall '89		Cohort 3 Spring '90		Total	
	No.	%	No.	%	No.	%	No.	%
Major Fields of Interest								
Engineering	14	46.7%	31	32.0%	6	11.1%	51	28.2%
Health Professions	2	6.7%	8	8.3%	10	18.5%	20	11.0%
Business	2	6.7%	6	6.2%	8	14.8%	16	8.8%
Science	0	0.0%	11	11.3%	4	7.4%	15	8.3%
Computer Science	2	6.7%	6	6.2%	2	3.7%	10	5.5%
General Education	2	6.7%	3	3.1%	4	7.4%	9	5.0%
Social/Behavioral Sciences	0	0.0%	4	4.1%	5	9.2%	9	5.0%
Occupational Technology	3	10.0%	1	1.0%	3	5.6%	7	3.9%
Architecture/Env. Design	0	0.0%	4	4.1%	1	1.9%	5	2.8%
Other	1	3.3%	3	3.1%	1	1.9%	5	2.8%
Undecided	4	13.3%	20	20.6%	10	18.5%	34	18.8%
Totals	30	100.0%	97	100.0%	54	100.0%	181	100.0%

Persistence

A primary goal of the MESA/MEP program was to encourage students to remain in school and to continue to pursue their goals. While the duration of this project was too short to generate definitive data on student persistence (reenrollment from term-to-term), some observations can be made. Enrollment patterns of the MESA/MEP students in Cohorts 1 and 2 are shown below (no data are available on students in Cohort 3, since they entered the MESA/MEP program in Spring 1990).

1. Of the 30 students in Cohort 1 (those who entered the MESA/MEP program in Spring 1989), six (20%) transferred to a four-year university, six (20%) left the Los Rios district for personal or other reasons, and 18 (60.0%) reenrolled for the Fall 1989 semester. All (100%) of the 18 who continued in Fall 1989 also reenrolled in Spring 1990.

2. Of the 97 students in Cohort 2 (those who entered the MESA/MEP program in Fall 1989), 84 (86.6%) reenrolled for the Spring 1990 semester.

These data can be compared to statistics described in a recent persistence study of all American River College students for the 1988-89 academic year, which revealed that an average of 58.0% of the first-time freshmen (and 59.0% of all students) who attended in the fall reenrolled the following spring. (Comparable data for spring-to-fall persistence are not available).

Grade Point Averages

Grade point averages were not designated as a criterion for evaluating this project and, again, the duration of the project was too short for trends to become evident. However, the following data are presented as descriptive statistics regarding participants in the MESA/MEP program.

	All Courses		All Transfer Courses		All Science/Math		Transfer Science/Math	
	GPA	(N)	GPA	(N)	GPA	(N)	GPA	(N)
Cohort 1	2.28	(30)	2.19	(29)	2.01	(25)	2.09	(23)
Cohort 2	2.48	(95)	2.55	(91)	2.39	(67)	2.36	(60)
Cohort 3	2.45	(44)	2.67	(38)	2.32	(26)	2.62	(24)
Total Group	2.44	(169)	2.50	(158)	2.29	(118)	2.28	(108)

In the figures shown above, GPA indicates the mean grade point average for each cohort, and N represents the number of individual student GPAs used to compute that mean. The total N for the first set of figures is 169 (rather than 181) because two students in Cohort 2 enrolled in classes but withdrew before the "drop deadline" and thus had no GPA, and ten of the students in Cohort 3 were first-time freshmen and thus had completed no courses when this report was written. The N varies in the other columns because only students who were enrolled in transfer courses and/or science/math courses were included in those computations.

Summary Statistics

As discussed earlier, many of the Student Intake Forms were completed by the MESA/MEP clerk during the spring semester of 1990, and some of the students who had begun their participation in the program prior to this time were not available to complete a form. Though there were attempts to collect the missing data by phone, some students could not be reached and there remained a high level of non-response on many questions. Another data collection problem was encountered due to the nature of some of the questions on the form: many of the questions elicited responses that could change over time, which called for periodic monitoring of student progress and updating of records. This type of detailed follow-up was impossible to perform given the limited availability of clerical staff. As a result, the statistics presented here provide just a snapshot of the participants at the time the data were collected. Moreover, interrelationships among items is difficult to establish. In the statistics which follow (except for Item 4b.), totals equal 181 students and 100%.

1. Date of MESA/MEP entry:

Spring 1989	30	16.6%
Fall 1989	97	54.1%
Spring 1990	54	29.3%

2. Participated in MESA in high school:

Yes	22	12.2%
No	134	74.0%
No Response	25	13.8%

3. Eligible for California public university upon graduation from high school:

a. University of California:			b. California State University:		
Yes	56	30.9%	Yes	68	37.6%
No	86	47.5%	No	76	42.0%
No Response	39	21.6%	No Response	37	20.4%

4. a. Family member attended college:

Yes	108	59.7%
No	33	18.2%
No Response	40	22.1%

b. Relationship of family member:

Sister	60	33.1%
Brother	47	26.0%
Father	44	24.3%
Mother	29	16.0%
Spouse	2	1.1%

5. a. Working while attending ARC:

Yes	111	61.3%
No	39	21.5%
No Response	31	17.1%

b. Average number of hours employed:

22.5 hours per week

6. Date of entrance to ARC:

1977-78 through 85-86	38	21.0%
1986-87	20	11.0%
1987-88	27	14.9%
1988-89	44	24.3%
1989-90	52	28.7%

7. Indicated need for a tutor:

Yes	59	32.5%
No	88	48.6%
No Response	34	18.8%

8. a. Financial aid applied for:

Yes	25	13.8%
No	125	69.1%
No Response	31	17.1%

b. Currently receiving financial aid:

Yes	14	7.7%
No	135	74.6%
No Response	32	17.7%

9. Transfer institution planned:

CSU Sacramento	53	29.3%
UC Davis	24	13.3%
Private School	10	5.5%
Other CSU	8	4.4%
UC Berkeley	6	3.3%
Other UC	4	2.2%
Undecided	54	29.8%
No Response	22	12.2%

10. Expected transfer date:

Prior to Fall 89	4	2.3%
1989-90	3	1.7%
1990-91	35	19.3%
1991-92	24	13.2%
1992-93	30	16.6%
No Response	85	47.0%

11. Transfer Admission Agreement signed:

Yes	11	6.1%
No	138	76.2%
No Response	32	17.7%

12. a. Applied for admission, four-year school:

Yes	19	10.5%
No	131	72.4%
No Response	31	17.1%

b. Accepted at four-year school:

Yes	19	10.5%
Not Applicable	131	72.4%
No Response	31	17.1%

13. Enrolled in ESL courses:

Yes	6	3.3%
No	148	81.8%
N/A	27	14.9%

14. Used MESA/MEP study hall:

Lots/Some	108	59.7%
Rare/No Response	73	40.3%

15. Used tutors:

Lots/Some	66	36.5%
Rare/No Response	115	63.5%

16. Involved in class clustering:

Yes	52	28.7%
No/No Response	129	71.3%

Space was provided on the forms to enter follow-up data regarding degrees awarded and transfer school, and records indicate that six MESA/MEP students from Cohort 1 transferred to four-year schools in Fall 1989. Firm data on Spring 1990 graduates and Fall 1990 transfers were not available as this report was written, but preliminary information indicated that at least 19 ARC MESA/MEP students had been accepted for transfer to a four-year university in Fall 1990: nine to the University of California, seven to California State University, and three to private universities. A list of these students is in the Appendix of this report.

Affective Outcomes of MESA/MEP Program

Statistics alone are inadequate to evaluate a project such as this, especially considering the short duration of this contract. Group meetings and individual interviews were held with ARC MESA/MEP participants in order to gather more information about what the program meant to those involved.

As discussed earlier, the OP&R evaluation design specifically included staff and student participant interviews to gather subjective information on their experiences with MESA/MEP. Questions were constructed to allow staff and participants to share their perceptions--both positive and negative--about the project. Interviews were conducted by OP&R staff familiar with both individual interview and "focus group" techniques, as well as with the overall research design. Written notes of all interviews and responses were compiled and then analyzed to produce narrative summaries.

Group Interviews. Two members of the district Office of Planning and Research staff met with a group of approximately 40 ARC MESA/MEP students at the college on Friday, May 4, 1990 to elicit student opinions and comments regarding the program in general. They dressed casually for the meeting to enhance their rapport with the students and promote a relaxed atmosphere. Prior to this meeting, OP&R staff had drafted a list of questions/concerns that they hoped to have the students address:

1. What did you like best about the MESA/MEP program?
2. What did you like least about the program?
3. To what extent did you attend the various MESA/MEP activities/tours available to you?
4. What ideas would you suggest to make MESA/MEP better?

The meeting was considered to be very productive. In general, students indicated they liked, used and appreciated the various program components and would like to see them expanded and better funded. A narrative summary of the responses is included in the Appendix of this report.

Individual Interviews. Following this group meeting, individual interviews were held over a period of several days with 31 ARC MESA/MEP students. Again, the OP&R interviewer was casually dressed in order to mix better with the students and provide an informal atmosphere, and questions to be addressed were drafted prior to the interviews. The questions were fairly broad and were intended to encourage students to talk openly about their experiences in the MESA/MEP program. They covered the following general areas:

1. How did you learn of the MESA/MEP program?
2. Please describe your experience with the program.
3. What are the most important benefits you have received from your participation?
4. To what extent have you made use of the learning materials and special services (e.g., study halls, tutoring, class clustering, counseling) available to you through the program?
5. To what extent have you participated in MESA/MEP activities?
6. What other campus programs or services do you use?
7. What are your current university transfer/major plans, and how do they differ from your plans prior to participating in MESA/MEP?
8. Do you plan to remain in the MESA/MEP program?

While the information obtained in these interviews is difficult to quantify, responses were generally very positive. A narrative summary of the interviews is included in the Appendix of this report.

Staff Interviews. District OP&R staff also interviewed MESA/MEP counselor Manuel Ruedas and held informal discussions with project director Mary Ellen Fort and project clerk Virginia Holland. They addressed the following concerns:

1. Has the program been successful in reaching the target groups of students?
2. What is the most important aspect of the program?
3. Are there other program areas you would like to mention?
4. What are some areas in which the program could improve?
5. What are the program's most pressing problems, in your opinion?
6. What grade would you give the MESA/MEP program for its first funded year?

Comments from all three staff members were incorporated in various sections of this report, and a summary of Mr. Ruedas' interview is included in the Appendix. There was consensus among staff members that the most important aspect of the MESA/MEP program was the mutual support system that developed among the

students and the resulting increase in their self-confidence and self-esteem. Crucial to making the MESA/MEP students feel supported and "almost a family" was program clerk Virginia Holland, whose incredible support for each individual student went far beyond her job specifications. Other program components considered successful included class clustering, study halls, linkage with the ARC Transfer Center, and the fact that the program did indeed reach the targeted minority student population. There was also general agreement among the staff regarding components that needed strengthening: the need for more staff, more office/study space, more structured tutoring/mentoring programs, personal and group counseling, and increased interaction with teaching faculty.

In general, Manuel Ruedas seemed to speak for all the staff in evaluating ARC MESA/MEP in its first year as a funded program: "Overall, I would give it a grade of B+/A-. There are some bugs to get out (staffing, funding, tutors), but in general it was very positive. The Counseling Department has helped a lot, and the students' successes speak for themselves. We need MESA/MEP--I hope it's here to stay."

CONCLUSIONS AND RECOMMENDATIONS

Much was accomplished in ARC MESA/MEP this year: participants received numerous scholarships and other honors; at least 19 students were accepted for transfer to four-year institutions; ties with high school MESA and university MEP groups were strengthened; and perhaps most importantly, students gained self-confidence and self-esteem through participation in the program. As a result of our initial evaluation, we recommend that the program's effectiveness could be increased in the following ways:

1. Staffing. Appoint a full-time director, a full-time permanent clerical support person, and possibly a student personnel assistant. Rationale: Statewide MESA guidelines call for one full-time director and one half-time clerical person; CSUS MEP currently has one full-time director, one full-time recruitment coordinator, and one full-time clerical person. ARC's MESA/MEP program appears to be substantially understaffed.

2. Organization. Maintain the organization of MESA/MEP as a program with active participants, coordinated by faculty and staff (rather than a club with members and student officers). This conforms to the statewide concept which has defined guidelines regarding ethnicity.

3. Advisory Board. Form an advisory board to include the ARC deans of mathematics and science, the director of Capitol Area MESA, and business/industry representatives in addition to the current ARC MESA/MEP core committee (Fort, Howard, Johnson, Montijo, Ruedas).

4. Corporate Networking. In cooperation with representatives from business and industry, develop a new corporate networking component to help students establish professional contacts and expand their understanding of various aspects of the corporate world.

5. Tutoring. Coordinate more closely with the ARC mathematics and science divisions in order to ensure that all students with tutoring needs are served.

6. Mentoring. Develop a mentoring component, using both faculty and professionals from business and industry as mentors and role models for MESA/MEP students.

7. Scholarships. Establish broad guidelines for allocation of scholarship dollars, based upon the needs of the applicant pool. If the scholarship allocation is too structured, dollar distribution is limited.

8. Criteria for Student Participation. Develop procedures to ensure that the guidelines outlined in the MESA/MEP brochure (e.g., enrollment in math/science course) are followed, and to delete student names from participation rolls as appropriate (graduated, withdrew from college, dropped for lack of interest, no appropriate math/science course, low grades, etc.).

9. Assistance to Other Community Colleges. In keeping with the ARC MESA/MEP's development as a pilot project, provide assistance as requested to other community colleges wishing to establish similar programs at their institutions. In particular, emphasize the importance of having access to a computer support system as part of the college's in-kind assistance, since special project funds awarded by the California Community Colleges Chancellor's Office may not be used to purchase computer hardware.

LRCCD OP&R
6/18/90

APPENDIX

Sample ARC MESA/MEP Brochure
MESA/MEP Data Gathering/Evaluation Forms
Summary of Program Activity Evaluations
Summary of Group Interview Responses
Summary of Personal Interviews
Summary of Staff Interview: Janis Cox Jones/Manuel Ruedas
List of MESA/MEP Students Transferring in Fall 1990
MESA/MEP Library List
How to Develop a MESA/MEP Program (Summary)

MESA/MEP
What Past Members Say

"It's a great program."
—Jon Sloan

"You get lots of support."
—Maria L. Cabrera

"It's really helped me."
—Georg Jovan

MESA/MEP
For More Information

MESA/MEP	484-8662
Counseling	484-8572
Transfer Center	484-8685
Science	484-8107
Math/Engineering	484-8215

Campus Locations
162A Raef Hall
425 Science

American River College
4700 College Oak Drive
Sacramento, CA 95841
916/484-8011
Los Rios Community College District

Success Starts Here

Math Engineering Science Achievement
Minority Engineering Program

American River College
Sacramento, California

MESA/MEP
Purpose & Eligibility

- **MESA** stands for Mathematics, Engineering, Science Achievement.
- **MEP** stands for MinorityEngineering Program.
- The MESA/MEP program provides special support services in math, engineering, science and computer.

You are eligible for membership if you are:

- Black, Hispanic or Native American

and

- Enrolled in, majoring, or working toward a degree in mathematics, science or engineering.

MESA/MEP
Services

- Tutors available by special appointment
- Reserved placement in certain required math, engineering and science classes
- Use of the MESA/MEP study rooms in Raef Hall and the Science Building, with access to ARC faculty members
- Opportunities for MESA/MEP scholarships
- Visits by faculty from both California State University, Sacramento (CSUS), and the University of California, Davis (UCD)
- Interchange with MESA/MEP students at CSUS and UCD, including special campus tours

MESA/MEP
Benefits of Membership

- Identify yourself as an achiever
- Demonstrate your commitment to your field of study, both in terms of college and career choices
- Improve greatly your chances of earning both your A.A. and B.A.
- Better understand your field of interest and its career opportunities
- Develop a close working relationship with a faculty member
- Meet friends who have the same academic and career interests
- Improve your study skills
- Enjoy a strong, supportive educational environment
- Build bridges to the university of your choice

MESA/MEP PROGRAM
American River College
(Form to be completed by student or Intake Interviewer)

PERSONAL INFORMATION:

Name _____ Social Security # _____-____-_____
(Last) (First) (M.I.)

Address _____ Home Phone _____
(Number and Street)

_____
(City, State) (ZIP)

Date of ARC MESA/MEP membership: _____ /____
(Semester/Year)

Were you a MESA/MEP member in high school? Yes___ No___

Are you eligible for admission to UC? Yes__ No__ To CSU? Yes__ No__

Has anyone in your immediate family attended college? Yes__ No__

If yes, who? Mother__ Father__ Sister__ Brother__ Husband/Wife__ Children__

Are you working? Yes__ No__ If yes, how many hours per week?____

What is your long-term Career Goal? _____

ARC INFORMATION:

Date of ARC Entrance: ____ ___ ARC Counselor _____*(Counselor Code _ _)*
(Semester/Year)

ARC Major: Spring 1989 _____ *(Major Code _ _ _)*

Fall 1989 _____ *(Major Code _ _ _)*

Spring 1990 _____ *(Major Code _ _ _)*

Do you need tutoring services? ____ If yes, list courses: _____

ARC Financial Aid: Applied for? Yes __ No __
Currently receiving? Yes __ No __

TRANSFER INFORMATION:

Intended Transfer Institution _____ *(College Code: __ __ __)*

Projected Transfer Date _____ ___
(Semester/Year)

Planned Major at Four-Year School _____ *(Transfer Major Code: __ __ __)*

Have you completed a Transfer Admission Agreement? Yes__ No__

Have you applied for admission? Yes__ No__ If yes, approximate date: _____

Have you been accepted? Yes___ No___ If yes, for what semester? _____ _____
(Semester/Year)

Office of Planning and Research
Los Rios, November 1989

MESA/MEP PROGRAM
American River College
(Data to be obtained from examining transcripts and other records)

Name _____ Social Security # ____-___-____
(Last) (First) (M.I.)

Gender: ___
M = Male
F = Female

Ethnicity: ___
A = Asian
B = Black
F = Filipino
H = Hispanic
N = Native American
O = Other

Birth Date: ___ ___ ___
MM/ DD/ YY

Enrolled in ESL? ___
Y = Yes
N = No

Date of ARC Entrance _____ _____
(Semester) (Year)

"Major Field of Interest" upon entry to ARC: _____ ___ ___ ___
(Name of Major Field) (Major Code)

	Spring 1989	Fall 1989	Spring 1990	Other College
Units Attempted	_____	_____	_____	_____
Units Completed	_____	_____	_____	_____
Cumulative GPA	_____	_____	_____	_____
Transfer GPA	_____	_____	_____	_____
Study Hall Use	Lots Some Rare	Lots Some Rare	Lots Some Rare	
Use of Tutor(s)	Lots Some Rare	Lots Some Rare	Lots Some Rare	
Class Clustering	N/A	Yes No	Yes No	
Talent Roster	Yes No	Yes No	Yes No	
Received Financial Aid	Yes No	Yes No	Yes No	
Crossover Enrollment	Yes No	Yes No	Yes No	
Crossover Institution	_____	_____	_____	
Scholarship(s) Received	$_____	$_____	$_____	
Type of Scholarship(s)	_____	_____	_____	

ARC AA/AS Degree Granted _____ ___ ___ ___ _____ ____
(Name of Major) (CC Major Code) (Semester/Year)

Transferred to: _____ ___ ___ ___ _____ ___ ___ ___ _____ ____
(College/University) (College Code) (Transfer Major) (Tr. Major Code) (Semester/Year)

Other Comments: _____
(Comments will not be computerized)

_____

Office of Planning and Research
Los Rios, November 1989

MESA/MEP PROGRAM
American River College

PROGRAM ACTIVITY EVALUATION SUMMARY
(To be completed by staff for each activity)
(Attach student evaluation forms, if any)

ACTIVITY:

__ (1) Weekly MESA/MEP Meeting
__ (2) Tour to UC Campus
__ (3) Tour to CSU Campus
__ (4) Tour to Independent College
__ (5) Visit to Local Industry/Corporation
__ (6) Off-Campus Retreat
__ (7) Visit to Local High School
__ (8) Visit to Local Elementary/Junior High School
__ (9) ARC Hosts Visiting Students
__ (10) Other _____

Date of Activity:_____ Number of Participants: _____

Name of Institution/Company Visited/Group Hosted: _____

Name/Phone Number of Contact Person: _____

Other Staff Members Involved: _____

Method of Transportation Used: _____

Cost Factors/Funding Source(s): _____

STUDENT RATINGS: *(Tally number who checked each rating, and attach evaluation sheets to this summary)*:

___ (5) Excellent
___ (4) Very Good
___ (3) Average
___ (2) Poor
___ (1) Very Poor

Comments or anecdotal notes: _____

_____

_____

Recommendations for future repetition of activity: _____

_____

_____

_____

Office of Planning and Research
Los Rios, November 1989

MESA/MEP PROGRAM
American River College

STUDENT EVALUATION OF ACTIVITY
(To be completed by each participating student)

ACTIVITY: _____ DATE: _____

TO THE STUDENT:

The MESA/MEP program at American River College has received special funding this year to provide activities that may help you achieve your educational goal and prepare for your career. Your evaluation of this activity will help us to improve and continue such activities in the future. Please answer the questions below. You need not sign your name, but do so if you wish.

What did you like best about this activity?

_____

_____

_____

What could have been improved?

_____

_____

_____

Overall, how would you rate this activity?

5	4	3	2	1
Excellent	Very Good	Average	Poor	Very Poor

What suggestions do you have for future activities?

_____

_____

_____

_____
(Your name -- if you wish)

THANK YOU!

Office of Planning and Research
Los Rios, November 1989

SUMMARY OF ARC MESA/MEP PROGRAM ACTIVITY EVALUATIONS

Activity: CSUS Tour, Career Presentation and Holiday Banquet
Date: December 8, 1989
Number of Participants: 44 ARC, 20 CSUS
Staff Member: Manuel Ruedas
Cost: $664.84
Student ratings: 14 Excellent, 11 Very Good

Summary of Activity: This activity began with a tour of the new CSUS Engineering building led by the Associate Dean of the School of Engineering and Computer Science. The tour was followed by a series of presentations made by professionals from the engineering and medical fields. Their talks encompassed both academic and work experiences. The presentations were followed by an open panel session for questions and discussion with MESA/MEP students. A holiday banquet hosted by the MESA/MEP program concluded the event.

Student evaluation summary: The high student ratings of this event were further supported by their comments; members found the program to be informative, motivating and enjoyable. There were many requests for more professional speakers in the future.

ARC Staff Comments/Recommendations: Staff also rated the event highly, made a few technical suggestions (better map, use of microphone, etc.) and recommended more of the same type of activity.

Activity: Tours of U.C. Campuses
Date of Activity: February 9, 1990
Number of Participants: 16
Staff Members: Manuel Ruedas, Brian Pond
*Cost: $90.00 (food only)
Student Ratings: 7 Excellent, 5 Very Good

Summary of Activity: Guided tours of the campuses of U.C. Berkeley and U.C. San Francisco were arranged for a group of MESA/MEP students.

Student Evaluation Summary: Many students reported that the visits were helpful in understanding requirements for their majors and in making their university transfer selections.

ARC Staff Comments/Recommendations: The staff evaluation indicated that UCB's tour was better-organized and more informative than UCSF's. The UCB visit included a presentation by a university MEP Program representative which served to establish a link with ARC's MESA/MEP program. A recommendation was made to include more interaction between MESA/MEP students and university tour guides on future visits.

Activity: MESA/MEP Planning Session and Party at the Ranch House
Date: February 16, 1990
Number of Participants: 30
Staff Members: Manuel Ruedas, Virginia Holland
Cost: $169.16
Student Ratings: 9 Excellent, 9 Very Good, 2 Average

Summary of Activity: This activity was planned on short notice but still managed to result in a very positive outcome. The weekend was originally intended for the leadership seminar/retreat at Sly Park, however, bad weather prevented the group from traveling to the park. Since many members were available, a last-minute planning session/party was organized for Friday evening at the Ranch House on the ARC campus.

Student Evaluation Summary: The function gave many participants the opportunity to better acquaint themselves with their fellow members in a social rather than an academic setting. Members were also able to participate in planning future activities for the program.

ARC Staff Comments/Recommendations: Staff agreed that the event was very enjoyable. Students showed alot of enthusiasm for both planning and socializing. Recommendations were made to better organize future planning sessions and to encourage more members to attend.

Activity: Retreat/Leadership Seminar at Sly Park
Date: April 6-8, 1990
Number of Participants: 16
Staff Members: Manuel Ruedas, Howard Wren, Virginia Holland
Cost: $1,046.65
Student Ratings: 7 Excellent, 3 Very Good, 1 Average

Summary of Activity: The leadership retreat and seminar was held at the Sly Park Conservation and Environmental Education Center in Pollock Pines, California. MESA/MEP students participated in a variety of events over the course of the weekend. Presentations included a self-empowerment lecture delivered by Howard Wren, an ARC counselor, and a culture and leadership talk led by Manuel Ruedas, MESA/MEP faculty advisor. Representatives from Pacific Bell conducted a workshop on how to plan and run an effective meeting. Presentations were also made by student representatives from CSUS and UCD minority organizations.

Student Evaluation Summary: Most of the students found the retreat to be very educational and enjoyable. Some students mentioned increased attendance, better food and availability of free time as potential areas of improvement. Nearly all would attend a similar event in the future.

ARC Staff Comments/Recommendations: The retreat was one of MESA/MEP's most successful events. The activities were of very high quality, most notably the presentation made by Pacific Bell representatives. Staff were very impressed with the strengthening of student relationships that resulted. A recommendation was made for similar activities to be planned in the future.

Activity: Tour of Stanford University
Date: May 25, 1990
Number of Participants: 9 ARC students, 40 Valley High School Students
Staff Members: Manuel Ruedas, Virginia Holland, Janis Jones (District Office)
*Cost: $2,621.48
Student Ratings: 5 Excellent, 2 Very Good, 2 Average

Summary of Activity: The visit to the university included a presentation made by two Stanford students as well as a tour of the campus. A group of interested MESA/MEP students also made a separate tour of the medical school.

Student Evaluation Summary: Overall the students found the day to be very informative. Several stated a desire to have future visits focus on specific majors.

ARC Staff Comments/Recommendations: Staff considered this trip to be very successful. The student presentations were outstanding and provided MESA/MEP participants with useful information about the university and its requirements.

Other University Tours

These activities occurred either prior to or following the data collection period, therefore no student/staff evaluation data were available at the time this report was prepared.

U.C. Davis, Spring 1989 - The MESA/MEP staff organized a tour of the School of Engineering.
*U.C. Santa Cruz, Summer 1990 - This leadership conference and tour will cost $1,754.63.

*Though the costs for university tours appear to be high, each trip, with the exception of the one to UC Berkeley/UC San Francisco, required a contract with an outside transportation company. The arrangements also included meals. In the case of the Stanford trip, an additional bus was needed to accomodate the group of high school students that attended as part of ARC MESA/MEP's recruitment effort.

ARC MESA/MEP Program
Group Interview Responses

On Friday, May 4th, OP&R staff visited American River College to conduct a group interview of MESA/MEP students to get their overall impressions of the ARC MESA/MEP program. Four questions were asked: 1) What did you like best about the MESA/MEP program; 2) What did you like least about the MESA/MEP program; 3) Did you attend the various MESA/MEP program activities/tours available to you; and 4) What ideas do you have to make MESA/MEP better. Listed below are the students' responses to the questions OP&R staff posed to them.

What did you like best about the MESA/MEP program?

- Ability to receive tutoring in desired subject area
- Availability of a "Quiet Room" to study/relax
- Ability to participate in class clustering programs
- Ability to use CSUS's MEP services/facilities
- Ability to participate in various leadership forums
- Ability to meet and socialize with other like-minded students
- Ability to receive mentoring from industry professionals
- Opportunity to be involved in a caring, family-type environment
- Tours to four-year institutions
- Increased access to numerous academic scholarships
- Increased access to counselors

What did you like least about the MESA/MEP program?

- Facilities too small
- Poor location of MESA/MEP facilities (noise problem with adjacent lecture hall)
- Problems in finding qualified tutors in desired subject areas
- MESA/MEP not available for night students (limited hours)
- Not enough time to spend with MESA/MEP faculty advisor
- MESA/MEP clerk is overworked

Did you attend the various MESA/MEP activities/tours available to you?

The majority of students interviewed indicated that they had participated in one or more of the organized MESA/MEP activities/tours available to them. Many students expressed a desire for more tours to the various four-year institutions.

MESA/MEP PERSONAL INTERVIEWS
CONDUCTED MAY 10-11 1990
NUMBER INTERVIEWED: 31

The following comments are based on interviews conducted with 31 participants in ARC's MESA/MEP program. Students were interviewed at random in the MESA/MEP meeting room on campus between the hours of 8:00 A.M. and 5:00 P.M.

Question 1: How did you hear about the MESA/MEP program at ARC?

About half of the students interviewed had heard about the program through MESA/MEP members. The others had learned of the program through a variety of sources including phone recruitment, ARC counselors, high school MESA programs, ads in campus flyers, and the MESA/MEP brochure.

Question 2: Please describe your experience with the program (reasons for joining, goals, expectations, etc.).

Many of the students interviewed shared the desire to be involved in a campus activity. Most had been attending school and working but had not been meeting other students nor getting involved academically. MESA/MEP presented an opportunity to become part of a program that meets both needs.

Question 3: What are the most important benefits you receive from your participation in the MESA/MEP program?

The two most important benefits cited by MESA/MEP students were:

1) academic guidance/involvement (tutoring, counseling, transfer assistance, university tours, etc.) and
2) peer group interaction/support

For many of the students interviewed, the two are strongly linked; but overall the program appears to be serving a spectrum extending from those who are involved primarily for the tangible benefits (early registration, course/career planning, tours, etc.) to those who are benefitting most from the intangible aspects of the program (support from the group, a sense of belonging, social interaction, etc.).

Question 4: Have you made use of the learning materials available to you through MESA/MEP?

MESA/MEP has developed a small library of reference materials and general resource books for students to use in the study hall. Materials available include a variety of science, math and engineering reference books. Approximately one third of the students interviewed had made use of the materials. Others plan to make use of the library as they progress into upper level math and science classes. A few students had not found the books they needed in the MESA/MEP library, but the collection will continue to grow both through purchases and through book donations made by university MEP programs.

Question 5: Have you received tutoring through the MESA/MEP program?

ARC staff indicated that there is a shortage of tutors at ARC, so some students who needed tutoring in upper level science and math courses were not able to receive it. However, about one third of the students interviewed had received some type of tutoring through MESA/MEP. Several students were tutored in basic math and science courses by other MESA/MEP participants through a peer tutoring effort organized by Virginia Holland, the program's clerk. During the Fall 1990 semester, some students received tutoring from an ARC Math Department instructor who spent time in the MESA/MEP study hall. Other students were able to receive tutoring through the Learning Center. One MESA/MEP participant, who was also a paid Learning Center tutor, obtained permission to give preference to MESA/MEP tutees. CSUS also provided some tutors to MESA/MEP.

Question 6: Are you involved in class clustering?

Early registration is available through MESA/MEP to allow students to plan their course and study schedules together. Letters were sent to students from Mary Ellen Fort, the program coordinator, to inform them of this opportunity. As a result, 30 students took advantage of early registration for Spring 1990 and 22 participated for the Fall 1990 semester.

Many of the students interviewed were involved in early registration, but when asked if they had formed study groups with other MESA/MEP participants in the same classes few responded affirmatively. A small number of respondents indicated that they were involved in study groups, but only a few of those groups were the result of class clustering organized through MESA/MEP.

Some students expressed an interest in forming study groups with non-MESA/MEP members. These students had not been able to find other MESA/MEP participants in their classes and so suggested that the MESA/MEP program set up a networking system through the Math and Science departments to enable them to meet with non-MESA/MEP members in the same majors.

Question 7: Have you used counseling services available through MESA/MEP?

Many students indicated that counseling appointments at the ARC Counseling Center must be scheduled weeks in advance, so the availability of advisors on a regular and frequent basis is a significant advantage to MESA/MEP participants. The counselors available to students through MESA/MEP include two from the ARC Counseling Center who donate one hour every other week to the MESA/MEP program. They operate on a drop-in basis in the MESA/MEP meeting room. Manuel Ruedas, MESA/MEP's faculty advisor at ARC, also makes himself available for counseling.

About two-thirds of the students interviewed had used one or more of these counselors and had found them to be helpful, responsive and accessible in providing advice regarding course planning, scholarships and transfer requirements.

Question 8: Have you participated in any MESA/MEP activities?

The enrichment activities offered by MESA/MEP are an important component of the program and students were very enthusiastic when relating their experiences with these events. Most students completed evaluation forms at the conclusion of an activity and the majority of responses were positive. (See evaluation forms for a more complete description of each activity.)

About two-thirds of the students interviewed had participated in one or more of the MESA/MEP activities conducted outside of the study hall. These activities included university tours, a career presentation and banquet, a leadership retreat, a resume workshop and a planning session and party. Several interviewees who had not attended were new MESA/MEP participants who planned to attend upcoming events. Some students were not able to attend due to work schedule conflicts.

Question 9: What other campus programs or services do you use?

Many of the students interviewed were making use of other campus services available to them. The most frequently cited services (more than two-thirds of the respondents mentioned these) were Counseling/Advisement, the Learning Center and Library Services. The second tier (about one-third mentioned these) included the Assessment Center, EOPS, Financial Aid, Job Placement and the Transfer Center.

Questions 10-13: What are your current university transfer/major plans and how are they different from your plans prior to joining MESA/MEP?

Nearly all respondents had planned to transfer to a four-year institution before they joined the MESA/MEP program. Most had also chosen a major or a field of interest. The comments made most frequently by interviewees regarding their academic and career plans with respect to the MESA/MEP program were that MESA/MEP had helped them to focus their interests, narrow down their university selections, and plan for transfer.

Question 14: Do you plan to remain in the MESA/MEP program?

Every student interviewed planned to continue in MESA/MEP at ARC and many also added that if their chosen university has a MEP program, they will seek it out. Though students had a number of suggestions for improving MESA/MEP at ARC, the overwhelming majority of responses regarding the program were extremely positive.

MESA/MEP Staff Interview:
Janis Cox Jones, Los Rios Director of Planning and Research
Manuel Ruedas, MESA/MEP Counselor
May 10, 1990

1. Has ARC's MESA/MEP program been successful in reaching the program's target groups?

It has gone farther and faster than I thought it would. It started in Fall '88 with 12 students; now 181 students have been involved. Overall, these include about 40% Hispanic, 33% Black, and 5% Native Americans; we also have students from Asian, East Indian, and other ethnic groups. Our students are some of our best recruiters; they bring new people in a lot.

2. What is the most important aspect of the program?

The support students get from each other is very important. These students often don't have the family support network (their parents may never have been in college). The lack of confidence and self-esteem is a real barrier to minority students. The program's different perspective, activities, and the support students get from each other counteract this. There is good support for women in the program--science and math are non-traditional careers for minorities, and even more so for women who are minorities.

3. Are there other program areas you'd like to mention?

Class clustering was done both in Fall 89 (30 students) and in Spring 90 (22 students), and involved pre-registration so students could schedule classes with each other. First priority for our students was to work around their work schedules; second was to find other students at least at the same (academic) level, if not the same class section. Students are catching onto the idea of group study--study hall has helped. They are overcoming the fear of exposing weaknesses to others. Study hall also gives them a forum for sharing their successes as well. It is important to recognize accomplishments: we have birthday celebrations; at the Friday meetings we recognize those who have received acceptance letters to universities (21 so far). No minimum number of units is required for participation in the MESA/MEP program, but a student needs 56 units to transfer. We encourage students to have 56 units transferable units, since junior-level applications for transfer get first priority, then full-time freshmen, then other-level transfers (four-year school to four-year school has the lowest priority for transfer).

The linkage to the ARC Transfer Center has been helpful; they always announce to MESA/MEP students the dates that college representatives will be on campus. (Linda Case from UC Davis and Sue Teale from CSUS are here most often.) We will be interested to see how many of our students have signed Transfer Admission Agreements (TAAs). Mary Ellen Fort, as Transfer Center director, sends letters to all minority students regarding activities on transfer for minorities.

3. What are some areas in which the program could improve?

There is a great need for financial aid, and for tutoring in math (particularly in algebra and trigonometry). A math faculty member helped out last semester, but there were not enough available tutors. CSUS Project 100 students (CSUS students who serve as mentors, particularly with community college vocational education students who could transfer) are serving as tutors. There is also a need for personal and group counseling--either one-on-one or support group counseling to handle the demands of jobs, family and school. An important goal for next year is to implement a mentoring system. Evergreen College in the San Jose District has a program similar to SCC's Puente, but with English and math components, training for their mentors, and scheduled events. There is a need for good computer

follow-up during the semester. We would like to use community members and professionals as mentors and also as tutors. While the ARC Tutoring Center on campus offered tutors as part of the in-kind contribution, the tutoring jobs don't pay well enough to attract good students. This is a serious problem. Greg Bell, a new black engineering teacher on campus (currently part-time) is willing to help set up a tutoring component, perhaps as a credit class. Not having a structured tutoring component is a problem.

There is also some concern (raised by a student who is half Hispanic/half white) about white reaction to priorities for minorities. On another topic, MESA/MEP as a program may need to scrutinize those transferring to ensure they have completed all their lower division requirements here, and not just 56 units; it would also be of interest to know how many were regular admits vs. special admits. We want to transfer students who have a good chance of success.

4. What are the program's most pressing problems, in your opinion?

Space for students is one: the average daily usage of the study hall in MESA/MEP office was 11.5 students per day in the fall; from January through March 1990 it averaged 33.5 students per day! There is a definite pattern of increased usage. The room capacity is only 15 or so; others have to stand. Peak time is 8:00 a.m. to noon. Location is a problem, especially with the door adjoining a lecture hall; one faculty member complains, but the students in his class don't. The one room is used for study hall, office, interviews, drop-in counseling, course planning, computer use, phone center, etc., so it's not always quiet for study. Most university MEP programs have at least two rooms (office and study hall). CSUS MEP has three rooms--study hall, office, and lounge.

Tutoring is a need, as already mentioned. Interaction with college faculty could be increased--maybe through the mentoring component. MESA/MEP is an academic program; it should have a stronger faculty role.

Staffing (Manuel 10%, Mary Ellen 20%) is also a problem, and we need training to help with how to expend and account for dollars from grants so it's understood. There is a desperate need for a full-time director; there needs to be more than just a percentage of someone's time. Trying to fulfill all the proposal components in addition to a regular counseling job is difficult. CSUS MEP has a full-time director, one secretary, and one counselor/recruiter; most MESA programs have at least one director and one full-time secretary. The precedent is there to have better staffing, given the number of students involved, and student demand is still increasing. Only three MESA/MEP students are also enrolled in EOPS, as far as we know. But students are linking to other college services (like the Transfer Center, Financial Aid Office, etc.)

Next year we would like to set up a structured course planning session for students with counselors prior to the priority registration program. This would help strengthen ties to other counselors and make the registration process easier. Students are good in using their own counselors and the drop-in counseling sessions.

5. What grade would you give the MESA/MEP program for its first funded year?

All in all, I would give our first-year a grade of B+/A-. There are still some bugs to get out (staffing, space, funding, tutors), but overall it has been very positive. The Counseling Department has helped a lot. And the students' successes speak for themselves. We need MESA/MEP--I hope it's here to stay.

AMERICAN RIVER COLLEGE MESA/MEP PROGRAM

Transferring Students, Spring 1990
(for Fall 1990)

UNIVERSITY OF CALIFORNIA

Cynthia Forsman	Berkeley
Mark Hernandez	Berkeley
Jessica G. Romero	Berkeley
Salem F. Kiflom	Davis
Tai K. Le	Davis
Danita J. Miranda	Davis
Angie L. Montalvo	Davis
Kevin H. Murai	Davis
Aba-Yawa Ngissah	Los Angeles

CALIFORNIA STATE UNIVERSITY

Cynthia M. Jaramillo	Sacramento
Maria R. Moore	Sacramento
Hugh T. Nguyen	Sacramento
Gerald Berumen	San Luis Obispo
Ami K. Schaefer	San Luis Obispo
Donna Vanderhoof	San Luis Obispo
Stephen M. O'Connell	Pomona

PRIVATE UNIVERSITIES

Jeffrey R. Pyle	University of San Francisco
Brett Stott	University of the Pacific
Beverly P. Watkins	Private University in Texas

MESA/MEP LIBRARY

Biology

Gray's Anatomy
Peter L. Williams and Roger Warwick
Thirty-sixth Edition
1980 W.B. Saunders Company

Human Anatomy and Physiology (Schaum's Series in Biology)
Kent M. Van De Graaff and R. Ward Rhees
1987 McGraw-Hill Book Company

Melloni's Illustrated Medical Dictionary
Ida Dox, Biagio John Melloni, Ph.D., and Gilbert M. Eisner, MD, FACP
Second Edition
1985 Williams and Wilkins

Pathophysiology: Clinical Concepts of Disease Processes
Sylvia Anderson Price and Lorraine McCarty Wilson
Third Edition
1986 McGraw-Hill Book Company

MESA/MEP LIBRARY

Chemistry

Chemistry Survival Cards, Volume 1
1986/88 Academic Survival Cards, Inc.

Chemistry Survival Cards, Volume 2
1986/88 Academic Survival Cards, Inc.

Handbook of Chemistry and Physics*
Robert C. Weast
Sixty-Ninth Edition
1988 CRC Press

Inorganic Chemistry Summary Cards
Visual Education Association

Organic Chemistry
Herbert Meislich, Howard Nechamkin, and Jacob Sharefkin
1977 McGraw-Hill Book Company

*This book is also listed on the Physics Library List.

MESA/MEP LIBRARY

Engineering

Basic Equations of Engineering Science (Schaum's Series in Engineering)
Hughes and Gaylord
1964 McGraw-Hill Book Company

Introduction to Engineering Caluculations for First Year Students (Schaum's Series in Engineering)
Byron S. Gottfried
1979 McGraw-Hill Book Company

Physics for Engineering and Science (Schaum's Series in Engineering)
Dane A. Wells and Harold S. Slusher
1983 McGraw-Hill Book Company

MESA/MEP LIBRARY

Mathematics

Beginning Calculus (Schaum's Series in Mathematics)
Elliott Mendelson
1985 McGraw-Hill Book Company

Differential and Integral Calculus (Schaum's Series in Mathematics)
Frank Ayres, Jr.
Second Edition
1964 McGraw-Hill Book Company

Differential Equations (Schaum's Series in Mathematics)
Frank Ayres, Jr.
1952 McGraw-Hill Book Company

First Year College Mathematics (Schaum's Series in Mathematics)
Frank Ayres, Jr.
1958 McGraw-Hill Book Company

Statistics (Schaum's Series in Mathematics)
Murray R. Spiegel
Second Edition
1988 McGraw-Hill Book Company

Statistics (Schaum's Series in Mathematics)
Murray R. Spiegel
1961 McGraw-Hill Book Company

MESA/MEP LIBRARY

Physics

The Dynamic Universe: An Introduction to Astronomy
Theodore P. Snow
Third Edition
1988 West Publishing Company

Fundamentals of Physics
David Halliday and Robert Resnick
Second Edition
1986 John Wiley and Sons, Inc.

Handbook of Chemistry and Physics*
Robert C. Weast
Sixty-ninth Edition
1988 CRC Press

Physics Summary Cards
Harrison Dwight, Ph.D.
Visual Education Association

University Physics
George B. Arfken, David F. Griffing, Donald C. Kelly, and Joseph Priest
1984 Academic Press, Inc.

*This book is also listed on the Chemistry Library List.

MESA/MEP LIBRARY

General Resource Books

The Merck Index
Tenth Edition
1983 Merck and Company, Inc.

Springhouse Drug Reference
1988 Springhouse Corporation

Webster's Collegiate Thesaurus
Merriam-Webster Company

Webster's Ninth New Collegiate Dictionary
Merriam-Webster Company

Eight Black American Inventors
Robert C. Hayden
1988 Corey and Lucas

How to Develop a MESA/MEP Program

MESA

Math, Engineering Science Achievement

MEP

Minority Engineering Program

Eight Components to Program Development

Intersegmental Support

Intersegmental Planning Committee

- District Personnel
- Community College Faculty
- Community College Administration
- University Faculty
- University Administration
- California Statewide MESA

Institutional Administrative Support

Institutional Planning Committee

- District Transfer Center Coordinator
- Community College Transfer Center Director/ MESA/MEP Coordinator
- Vice Presidents
  Student Services and Instruction
- Division Deans
  Math, Engineering, & Science
- Division Dean of Counseling
- UC and CSU Admissions Advisors

Records and Admissions

Faculty Participation and Support

- Science Division
- Math and Engineering Division
- Counseling Division
- Articulation Specialist

Effective Computerized System

- Computer Program Specialist
- Development of Transfer Center Data Base
- Capacity to Identify Specific Student Populations
- Expedient Data Query and Analysis

Initial Organizational Funding Budget Resources

• Campus	$ 700.00
• Vice President of Student Services	
• Dean of Counseling and Transfer Center	
• Transfer Center	
Student Help	$ 100.00
Supplies	$ 269.00
Equipment	$ 231.00
Travel	$ 100.00
• Capital Center MESA (Scholarships)	$ 500.00

Current Funding

• Chancellor's Office California Community Colleges MESA/MEP Grant	$ 30,000.00
• Scholarships	$ 5,000.00
• Leadership Development	$ 3,000.00
• Recruitment	$ 2,000.00
• Enrichment	$ 3,000.00
• Staff Travel	$ 1,500.00
• Follow Up/Research	$ 3,500.00
• Clerical Support	$ 10,000.00
• Equipment	$ 1,900.00
• Supplies	$ 100.00

Evaluation

- Independent Contractor
- District Office of Research
- College Personnel
- Delivery——Project Monitor
  California Community College Chancellor's Office

The Eighth Component

Concern

Commitment

ERIC Clearinghouse for Junior Colleges JUL 19 1990